

US009410191B2

(12) United States Patent

Alvarez, Jr. et al.

(54) METHOD AND SYSTEM FOR DECONTAMINATING MATERIALS

(71) Applicant: RASIRC, Inc., San Diego, CA (US)

(72) Inventors: **Daniel Alvarez, Jr.**, Oceanside, CA

(US); **Jeffrey J. Spiegelman**, San Diego, CA (US); **Russell J. Holmes**, San Diego, CA (US); **James Hogan**, Coronado, CA

(US)

(73) Assignee: RASIRC, Inc., San Diego, CA (US)

(*) Notice: Subject to any disclaimer, the term of this

patent is extended or adjusted under 35

U.S.C. 154(b) by 0 days.

(21) Appl. No.: 14/710,521

(22) Filed: May 12, 2015

(65) Prior Publication Data

US 2015/0329901 A1 Nov. 19, 2015

Related U.S. Application Data

- (60) Provisional application No. 61/992,806, filed on May 13, 2014, provisional application No. 62/027,562, filed on Jul. 22, 2014, provisional application No. 62/058,987, filed on Oct. 2, 2014.
- (51) Int. Cl.

 A61L 9/00 (2006.01)

 A62B 7/08 (2006.01)

 A61L 2/00 (2006.01)

 (Continued)

(10) **Patent No.:**

US 9,410,191 B2

(45) **Date of Patent:**

Aug. 9, 2016

(58) Field of Classification Search

CPC A61L 2/00; A61L 2/186; A61L 2/208; A61L 2/22; A61L 9/015; A61L 9/03 USPC 422/1, 4, 28, 32–33, 123, 292, 298, 305 See application file for complete search history.

(56) References Cited

U.S. PATENT DOCUMENTS

2,178,496 A 10/1939 Schmidt 2,193,622 A 3/1940 Coulter (Continued)

FOREIGN PATENT DOCUMENTS

EP 0302420 B1 6/1992 EP 0780130 A1 6/1997 (Continued)

OTHER PUBLICATIONS

International Search Report for International Application No. PCT/US2013/031519, mailed on Jun. 14, 2013.

(Continued)

Primary Examiner — Monzer R Chorbaji (74) Attorney, Agent, or Firm — Pierce Atwood LLP; Kevin Farrell; Daniel A. Lev

(57) ABSTRACT

Methods, systems, and devices for decontaminating materials containing biological or biologically derived materials, such as microorganisms or DNA products, are provided. The methods, systems, and devices may be used for decontaminating or sterilizing materials, such as surfaces, including, but not limited to reducing the number of viable microorganisms on surfaces. The methods, systems, and devices may further be used for rendering DNA non-amplifiable in nucleic acid amplification reactions that synthesize DNA amplification products.

30 Claims, 26 Drawing Sheets

